

CLAIMS

1. A method for forming a pattern comprising the steps of:

forming a mask over a light-transmitting substrate;

5 forming a first region having a substance including a light-absorbing material over the light-transmitting substrate and the mask;

forming a second region by irradiating the substance with light to modify a part of the substance surface wherein the light has a wavelength which is absorbable by the light-absorbing material; and

10 forming a pattern on the second region by discharging a compound including a pattern forming material.

2. A method for forming a pattern comprising the steps of:

forming a mask over a light-transmitting substrate;

15 forming a first region having a substance including a light-absorbing material over the light-transmitting substrate and the mask;

forming a second region by irradiating the substance with light through the light-transmitting substrate to modify a part of the substance surface wherein the light has a wavelength which is absorbable by the light-absorbing material; and

20 forming a pattern on the second region by discharging a compound including a pattern forming material.

3. A method for forming a pattern comprising the steps of:

forming a mask over a light-transmitting substrate;

25 forming a first region having a substance including a light-absorbing material over the light-transmitting substrate and the mask;

forming a second region by irradiating the substance with light through the light-transmitting substrate to modify a part of the substance surface wherein the light has a wavelength which is absorbable by the light-absorbing material;

30 removing the light-absorbing material; and

forming a pattern on the second region by discharging a compound including a pattern forming material.

4. The method for forming a pattern according to claims 1 to 3,
5 wherein the light-absorbing material is dissolved in the substance to form the substance including the light-absorbing material.

5. The method for forming a pattern according to claims 1 to 3,
wherein the light-absorbing material is dispersed in the substance to form the
10 substance including a pigment.

6. The method for forming a pattern according to claims 1 to 3, wherein a pigment is used as the light-absorbing material to form the substance including the light-absorbing material.
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7. The method for forming a pattern according to claims 1 to 3,
wherein a photocatalyst substance is used as the light-absorbing material to form the substance including the light-absorbing material.

8. The method for forming a pattern according to claims 1 to 3,
20 wherein the wavelength of the light is 300 nm or more and 400 nm or less, and coumarin 6H, coumarin 30, coumarin 102, coumarin 152, coumarin 153, or coumarin 545T is used as the light-absorbing material.

9. The method for forming a pattern according to claims 1 to 3,
25 wherein the substance including the light-absorbing material includes fluorocarbon chains.

10. The method for forming a pattern according to claims 1 to 3,
30 wherein the substance surface is modified so that the first region has higher

wettability than the second region with respect to the compound.

11. A method for manufacturing a thin film transistor comprising the steps of:
forming a first conductive layer over a light-transmitting substrate;
5 forming an insulating layer over the light-transmitting substrate and the first conductive layer;
forming a first region including a light-absorbing material over the insulating layer;
forming a second region by irradiating the substance with light through the
10 light-transmitting substrate to modify a part of the substance surface wherein the light has a wavelength which is absorbable by the light-absorbing material; and
forming a second conductive layer on the second region by discharging a compound including a conductive material.

12. A method for manufacturing a thin film transistor comprising the steps of:
forming a first conductive layer over a light-transmitting substrate;
forming an insulating layer over the light-transmitting substrate and the first
15 conductive layer;
forming a first region including a light-absorbing material over the insulating
20 layer;
forming a second region by irradiating the substance with light through the light-transmitting substrate to modify a part of the substance surface wherein the light has a wavelength which is absorbable by the light-absorbing material;
removing the light-absorbing material; and
25 forming a second conductive layer on the second region by discharging a compound including a conductive material.

13. The method for manufacturing a thin film transistor according to claim 11 or 12,
30 wherein a pigment is used as the light-absorbing material to form the substance

including the light-absorbing material.

14. The method for manufacturing a thin film transistor according to claim 11 or 12,

5 wherein a photocatalyst substance is used as the light-absorbing material to form the substance including the light-absorbing material.

15. The method for manufacturing a thin film transistor according to claim 11 or 12,

10 wherein the substance including the light-absorbing material includes fluorocarbon chains.

16. The method for manufacturing a thin film transistor according to claim 11 or 12,

15 wherein the substance surface is modified so that the first region has higher wettability than the second region with respect to the compound.

17. The method for manufacturing a display device according to claim 11 or 12,

20 wherein the first conductive layer is formed as a gate electrode layer, and the second conductive layer as a source electrode layer and a drain electrode layer.

18. A thin film transistor comprising:

a first conductive layer provided over a light-transmitting substrate;

25 an insulating layer over the light-transmitting substrate and the first conductive layer;

a substance including a light-absorbing material over the insulating layer;

a second conductive layer selectively over the substance; and

a semiconductor layer over the substance and the second conductive layer.

19. A thin film transistor comprising:

a first conductive layer provided over a light-transmitting substrate;

an insulating layer over the light-transmitting substrate and the first conductive layer;

5 a substance including a light-absorbing material and fluorocarbon chains over the insulating layer;

a first region and a second region over the substance surface; and

a second conductive layer over the second region,

wherein the first region contains more fluorocarbon chains than the second
10 region.

20. The thin film transistor according to claim 18 or 19,
wherein the light-absorbing material is a pigment.

15 21. The thin film transistor according to claim 18 or 19,
wherein the light-absorbing material is a photocatalyst substance.

22. A display device comprising:

a gate electrode layer provided over a light-transmitting substrate;

20 an insulating layer over the light-transmitting substrate and the gate electrode layer;

a substance including a light-absorbing material over the insulating layer;

a source electrode layer and a drain electrode layer selectively over the substance; and

25 a semiconductor layer over the substance, the source electrode layer, and the drain electrode layer.

23. A display device comprising:

a gate electrode layer provided over a light-transmitting substrate;

30 an insulating layer over the light-transmitting substrate and the gate electrode

layer;

a substance including a light-absorbing material and fluorocarbon chains over the insulating layer;

a first region and a second region over the substance surface; and

5 a source electrode layer and a drain electrode layer over the second region, wherein the first region contains more fluorocarbon chains than the second region.

10 24. The display device according to claim 22 or 23, wherein the light-absorbing material is a pigment.

25. The display device according to claim 22 or 23, wherein the light-absorbing material is a photocatalyst substance.

15 26. A television device having a display screen including a display device comprising:

a gate electrode layer provided over a light-transmitting substrate;

an insulating layer over the light-transmitting substrate and the gate electrode layer;

20 a substance including a light-absorbing material over the insulating layer;

a source electrode layer and a drain electrode layer selectively over the substance; and

a semiconductor layer over the substance, the source electrode layer, and the drain electrode layer.

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27. A television device comprising:

a gate electrode layer provided over a light-transmitting substrate;

an insulating layer over the light-transmitting substrate and the gate electrode layer;

30 a substance including a light-absorbing material and fluorocarbon chains over

the insulating layer; and

a first region and a second region over the substance surface,

wherein a display screen includes a display device having a source electrode layer and a drain electrode layer over the second region, and

5 wherein the first region contains more fluorocarbon chains than the second region.

28. The television device according to claim 26 or claim 27,

wherein the light-absorbing material is a pigment.

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29. The television device according to claim 26 or claim 27,

wherein the light-absorbing material is a photocatalyst substance.